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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,176	12/11/2003	Toshihiro Otake	9319S-000601	5944
27572	7590	01/09/2006	EXAMINER	
HARNESSE, DICKEY & PIERCE, P.L.C.			QI, ZHI QIANG	
P.O. BOX 828				
BLOOMFIELD HILLS, MI 48303			ART UNIT	PAPER NUMBER
			2871	

DATE MAILED: 01/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/733,176	<b>Applicant(s)</b> OTAKE ET AL.	
	<b>Examiner</b> Mike Qi	<b>Art Unit</b> 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 21 November 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 13,14,17-19 and 26-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13,14,17-19 and 27-29 is/are allowed.
- 6) ☒ Claim(s) 26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>10/21/05</u> .  | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,195,140 B1 (Kubo et al) in view of US 6,924,858 B2 (Nagayama et al).

Regarding claim 26, Kubo discloses (col.11, lines 20-50; Figs.1-6) a conventional substrate in the art comprising:

- interlayer insulating film (19) as a base layer formed on the substrate (11), the base layer (19) having a surface with a flat section and concave portions and convex portions being spaced apart from an edge of the base layer by the flat section (as shown in Fig.6);
- reflecting layer (23) (metal film) over the base layer (19) (because only the reflective region needs the reflective layer formed on such base layer, so that the reflecting layer 23 over the base layer 19 in the reflective region 22); and the light reflecting layer (23) having a flat section and concave portions and convex portions that correspond to the flat section and the concave portions and convex portions of the base layer (19) (as shown in Fig.6).

Although Kubo does not show that the light reflecting layer completely covering the flat section of the base layer, as a general available knowledge, in order to efficiently

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utilize the light reflection using light scattering effect and forming a reflective layer having flat section, concave portions and convex portions completely covering a base film so as to widen the viewing angle.

As evidence, Nagayama discloses (col.4, line 53 – col.5, line10; Figs.1-2) that the organic insulating film (26) functions as a base layer having a plurality of protuberances (convex) (26c) and recesses (concave) (26d), and the reflective pixel electrode (23) formed of metal such as silver functions as the light reflecting layer having protuberances (convex) (23c) corresponding to the protuberances (convex) (26c) of the organic insulating film (26) and recesses (concave) (23d) corresponding to the recesses (concave) (26d) of the base film (26), and such light reflecting layer (23) completely covering the base film (26) including the flat section of the base film (26) as shown in Fig.1). Nagayama indicates (col.5, lines 3-10) that such structure is essential to utilize surrounding outside light as efficiently as possible to brighten the display screen, and efficiently utilize outside light beams incident at all angles.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to modify the substrate for an electro-optical device of Kubo with the teachings of using light reflecting layer completely covering the base film as taught by Nagayama, since the skilled in the art would be motivated for efficiently to brighten the display and efficiently to utilize outside light beams incident at all angles (col.5, lines 3-10).

***Allowable Subject Matter***

1. Claims 13-14,17-19 and 27-29 are allowed.
2. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record neither discloses nor teaches a structure of the substrate for an electro-optical device in which all the concave portions and convex portions on the surface of a base layer are separated from the edge of the base layer by the flat section by a distance in a range of 4  $\mu\text{m}$  to 12  $\mu\text{m}$  as shown in Figs.6 and 10 [claims 13 and 29].

The closest references Kubo and Nagayama disclose that a liquid crystal display device having a reflective layer formed on a base layer (insulating layer) wherein a plurality of concave and convex portions on the surface of the base layer, and all of the concave portions and convex portions separated from the edge of the base layer by a predetermined distance. However, the prior art of reference do not teach having such distance of 4  $\mu\text{m}$  to 12  $\mu\text{m}$  as claimed.

***Response to Arguments***

3. Applicant's arguments filed Nov.21, 2005 have been fully considered but they are not persuasive.

1) The reference Nagayama shows (col.4, line 53 – col.5, line10; Figs.1-2) that the organic insulating film (26) functions as a base layer and the reflective pixel electrode (23) formed of metal such as silver functions as the light reflecting layer, and

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such light reflecting layer (23) completely covering the base film (26) including the flat section of the base film (26) as shown in Fig.1). Nagayama indicates (col.5, lines 3-10) that such structure is essential to utilize surrounding outside light as efficiently as possible to brighten the display screen, and efficiently utilize outside light beams incident at all angles.

### ***Conclusion***

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mike Qi whose telephone number is (571) 272-2299.

The examiner can normally be reached on M-T 8:00 am-5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mike Qi  
January 5, 2006

  
ANDREW SCHECHTER  
PRIMARY EXAMINER